Remarks

Status of the Claims

Claims 1-13 are pending in this application. Claims 1-2, 4-5, and 7 stand rejected. Claims 3, 6, and 13 are objected to. Claims 1-6 and 13 are amended. Claims 8-12 are withdrawn from consideration under a restriction requirement.

Restriction Requirement Made Final:

Applicants note that the Restriction Requirement was made final.

Patentability Under 35 U.S.C. §112:

A. Amended claims 1-2 and original claim 7 are enabled under the standards for 35 USC 112, first paragraph.

The *Wands* factors as set out by the Examiner are appropriately reviewed for enablement of the claimed invention. However, undue experimentation to practice the invention is not required. We agree with the Examiner that the field of molecular biology is regarded as a relatively unpredictable art. However, the other *Wands* factors, especially "the state of the art", "amount of direction or guidance presented," and "the relative skill of those in the art" weigh in favor of enablement of the invention as claimed. The techniques needed to practice the invention were well known to those of skill in the art for many years at the time of the invention. The specification fully discloses methods to "identify, derive, or isolate natural and synthetic mutants of the nucleotide sequences of SEQ ID NO: 1." It is also expected that the skilled person would be able to provide or derive polypeptides having the sequences (as defined) of SEQ ID NO: 2 by means of protein expression. (See especially, paragraphs 0008-0035.) The specification also describes or provides guidance to those of skill in the art how to assess encoded proteins that have biological activity as a hemipteran myosin light chain kinase (see especially paragraphs 0036-0038). These techniques were found to be well known by those of skill in the art by the Federal

Circuit as early as 1993. (See *In re Bell*, 991 F2d 781 (CAFC 1993) and *In re Deuel*, 51 3d 1152 (CAFC 1995).

Furthermore, as recently explained in the precedential opinion of *Ex parte Kubin* (PTO Bd. App., May 31, 2007), a rejection for lack of enablement on the basis of undue experimentation is not appropriate where the amount of experimentation to practice the full scope of the claimed invention would have been routine, even if extensive. Since, as shown above, the methods used to practice the full scope of Applicants' invention are routine and even if extensive, the pending rejection for lack of enablement should be withdrawn.

In light of the above discussion, reconsideration of claims 1, 2, and 7, withdrawal of the rejection for lack of enablement, and allowance are respectfully requested.

B. Claims 1-2 and 7, as amended, are supported by a written description complying with the standards of 35 USC §112, first paragraph.

Claims 1, 2, and 7 were rejected as not supported by adequate written description, more particularly for not providing examples of which other nucleotides besides the bases from DNA sequences encoding SEQ ID NO.: 2 must be incorporated in the claimed fragments.

The written description requirement of 35 USC §112 concerns how to make the claimed invention. Traditional analysis looks to whether the Applicant "had possession" of the claimed genus as of the filing date of the application. This is a factual inquiry, intended to exclude extending the scope of the claim to subject matter exceeding a "reasonable correlation" with the scope of disclosure. The written description complies with § 112 if a person of ordinary skill in the art would be expected to make sequence fragments of SEQ ID NO:1 having at least 15 nucleotides and retaining the functional utility of the full length sequence.

As established above in the discussion of enablement, Applicants have sufficiently enabled the claimed subject matter. Therefore, Applicants also satisfied the written description requirement. (See *Lizardtech v. Earth Resource Mapping*, 424 F3d 1336, 1334-45, (CAFC 2005).) At the time Applicants' application was filed the level of skill in the art of molecular biology was high. Methods of making the claimed nucleic acid sequences and screening for activity were well known in the art and described in the specification. Applicants disclosed a full length nucleotide sequence of the isolated nucleic acid. They also disclosed a full length polypeptide encoded by the disclosed nucleotide sequence. Disclosure of the full length sequences inherently includes disclosure to of each claimed fragment having the claimed functionality. The claims are supported by disclosure directed to biological material having hemipteran myosin light chain kinase activity. Claims 1 and 2 have been amended to specifically refer to this function of the biological materials.

In light of the above discussion, reconsideration of claims 1-2 and 7, and withdrawal of the rejection for lack of written description are respectfully requested.

Patentability Under 35 U.S.C. §102:

Claims 1-2, and 7 stand rejected under **35 U.S.C. §102(b)** as being anticipated by Daley *et al.* (J. Mol. Biol., 279:201-210, 1998). Daley *et al.* disclose a fragment having or consisting of at least 10 nucleotides of a sequence encoding SEQ ID NO:2 (*i.e.*, residues 417-429 of Daley). This disclosure was found to anticipate claims 1-2. At page 208, Daley *et al.* disclose cloning its DNA sequences. This disclosure was found to inherently require preparing expression vectors comprising its DNA sequences and so to anticipate claim 7.

Applicants have amended independent claim 1. As amended, claim 1 is drawn to an isolated nucleic acid molecule having a nucleic acid sequence selected from the group consisting of "a nucleic acid sequence that encodes a polypeptide sequence of SEQ ID NO: 2 having hemipteran myosin light chain kinase activity, and a fragment thereof having at least 15 nucleotides." Applicants have amended dependent claim 2. As

amended, claim 2 now recites "a fragment of SEQ ID NO: 1 having at least 15 nucleotides."

In light of the foregoing amendment, independent claim 1 is not anticipated by the disclosure of Daley *et al.* Reconsideration of amended claim 1, withdrawal of the rejection, and prompt allowance is respectfully requested. Dependent claim 2 (as amended) and original 7 are also not anticipated by the disclosure of Daley *et al.* Reconsideration of claim 2, as amended, and original claim 7, withdrawal of the rejection, and prompt allowance is respectfully requested.

Claims 4-5 stand rejected under **35 U.S.C. §102 (e)** as being anticipated by Olek *et al.* (US20040241651A1, published 12/2004). Olek *et al.* teach several nucleic acid molecules. An alignment of nucleotides of the Olek *et al.* fragments with the disclosed nucleotides of the originally claimed invention showed that a 13-nucleotide fragment of SEQ ID NO:1 was described in the application for patent, published under section 122(b), by Olek *et al.* filed in the US before the invention by Applicants for patent.

Applicants have amended dependent claims 4 and 5. Amended claims 4 and 5 now recite a fragment of SEQ ID NO:1 with a minimum of 15 nucleotides.

In light of the foregoing amendments, dependent claims 4 and 5 are not anticipated by the disclosure of Olek *et al.* Reconsideration of claims 4 and 5 as amended, withdrawal of the rejection, and prompt allowance are respectfully requested.

Allowable Subject Matter

Claims 3, 6, and 13 were deemed allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Allowability of such amended claims rests on the finding of record that nucleic acids encoding SEQ ID NO:2 or consisting of a fragment of SEQ ID NO:1 having 15-50 nucleotides are free of prior art. Applicants have rewritten claim 3 in independent form as suggested. Applicants

have amended claims 6 and 13 to depend from amended claim 2. Applicants call attention to amended claims 1 and 2, in which the minimum length of fragments of the nucleotide sequence encoding a polypeptide sequence of SEQ ID NO: 2 having hemipteran myosin light chain kinase activity is increased to 15 nucleotides. In light of these amendments which overcome rejections for anticipation as discussed above, reconsideration and allowance of claims 3, 6, and 13 are respectfully requested.

Extension of Time

Authorization is hereby made to charge the amount of $1,020.00 for a three-month extension of the response time to Deposit Account No. 06-1440. Please consider this authorization as a petition for an extension of time. Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

Conclusion

In view of the foregoing, Applicants respectfully assert that the independent claims patentably define the present invention over the citation of record. Further, the dependent claims should also be allowable for the same reasons as their respective base claims and further due to the additional features that they recite. Therefore, Applicants request reconsideration, withdrawal of the rejections and objections, and early allowance of the presented claims. Separate and individual consideration of the dependent claims is respectfully requested.

Respectfully submitted,

/John M. Sheehan, Reg. No. 26,065/
John M. Sheehan, Reg. No. 26,065
Phone: (215) 299-6966

July 24, 2007

Correspondence Address:
Patent Administrator
FMC Corporation
1735 Market Street
Philadelphia, PA 19103

JMS/LAF